

ORIGINAL

APPLICATION FOR PERMIT

TO APPROPRIATE THE PUBLIC WATERS OF THE STATE OF NEVADA

MAR 12 1979

Date of filing in State Engineer's Office.....

Returned to applicant for correction.....

Corrected application filed.....

Map filed..... APR 8 1979

The applicant Thermal Power Company and Southland Royalty Company  
601 California Street, of San Francisco,  
Street and No. or P.O. Box No. City or Town  
California 94108, hereby make application for permission to appropriate the public  
State and Zip Code No.

waters of the State of Nevada, as hereinafter stated. (If applicant is a corporation, give date and place of incorpora-  
tion; if a copartnership or association, give names of members.) Thermal Power Company was in-  
corporated in California, December 6, 1956. Southland Royalty  
Company was incorporated in Delaware, November 26, 1924.

1. The source of the proposed appropriation is deep geothermal reservoir 5000-8500 feet  
Name of stream, lake or other source.

2. The amount of water applied for is five (5) second-feet  
One second-foot equals 448.83 gals. per min.

(a) If stored in reservoir give number of acre-feet acre-feet

3. The water to be used for industrial applications  
Irrigation, power, mining, manufacturing, domestic, or other use.

4. If use is for:

(a) Irrigation (state number of acres to be irrigated).....

(b) Stockwater (state number and kinds of animals to be watered).....

(c) Other use (describe fully under "No. 12. Remarks") Industrial

(d) Power:

(1) Horsepower developed.....

(2) Point of return of water to stream.....

5. The water is to be diverted from its source at the following point: NW¼ of SE¼ Section 21, T24N-  
R36E, or 20,412.49 feet N54°-09'-57" East from South ¼ Corner of  
Describe as being within a 40-acre subdivision of public survey, and by course and distance to a section corner. If on unsurveyed land,  
Section 36-T24N-R35E, MDB&M  
it should be stated.

6. Place of use NW¼ of SE¼ of Section 21, T24N-R36E, MDB&M  
Describe by legal subdivision, if on unsurveyed land it should be so stated.

7. Use will begin about 1 January and end about 31 December, of each year.  
Day and Month Day and Month

8. Description of proposed works. (Under the provisions of NRS 535.010 you may be required to submit plans and  
specifications of your diversion or storage works.) The proposed works would be the com-  
pleted geothermal well. Water would be diverted from the geothermal  
reservoir, through the cased wellbore to the wellhead for the initial  
State manner in which water is to be diverted, whether by dam or other works, whether through pipes, ditches, flumes, or other conduits.  
beneficial use which is well flow testing to evaluate the geothermal  
reservoir. The wellbore will be cased to an estimated depth of  
6300 feet (see attachment: Drilling and Completion Procedure).

9. Estimated cost of works. One Million one hundred thousand dollars (\$1,100,000.00)
10. Estimated time required to construct works. Sixty to Ninety days
11. Estimated time required to complete the application to beneficial use. three (3) to six (6) months
12. Remarks: For use other than irrigation or stock watering, state number and type of units to be served or annual consumptive use.

The industrial use of appropriated water, consequent to this application, would be the production of water or geothermal effluent from wellhead, then through surface pipeline, to electrical generating plant. Additional economic utilization of the geothermal energy may be effected subsequent to or separate from electrical generation.

Applicant. Thermal Power Company  
Southland Royalty Comapny By Thermal Power Company  
By s/ W.L. D'Olier  
W.L. D'Olier, Vice President  
Compared. lp/dh ja/dr 601 California Street  
San Francisco, California 94108

### APPROVAL OF STATE ENGINEER

This is to certify that I have examined the foregoing application, and do hereby grant the same, subject to the following limitations and conditions:

This permit is issued subject to existing rights. It is understood that the amount of water herein granted is only a temporary allowance and that the final water right obtained under this permit will be dependent upon the amount of water actually placed to beneficial use. It is also understood that this right must allow for a reasonable lowering of the static water level. If the well is flowing, a valve must be installed and maintained to prevent waste. Accurate measurements must be kept of water placed to beneficial use. This source is located within an area designated by the State Engineer, pursuant to NRS 534.030. The State retains the right to regulate the use of the water herein granted at any and all times.

There are to be no perforations in the well for at least the first 3,000 feet. The well is to be cemented from the 3,000 foot level to the surface to protect fresh water zones.

This permit is further issued subject to the condition that the power or energy generated by the beneficial use of this water or steam is subject to recapture and use within the boundaries of the State of Nevada when the need arises.

The amount of water to be appropriated shall be limited to the amount which can be applied to beneficial use, and not to exceed 5.0 cubic feet per second, but not to exceed 3,620.0 acre-feet annually.

Actual construction work shall begin on or before June 28, 1980

Proof of commencement of work shall be filed before July 28, 1980

Work must be prosecuted with reasonable diligence and be completed on or before June 28, 1981

Proof of completion of work shall be filed before July 28, 1981

Application of water to beneficial use shall be made on or before June 28, 1984

Proof of the application of water to beneficial use shall be filed on or before July 28, 1984

Map in support of proof of beneficial use shall be filed on or before

Commencement of work filed FEB 25 1980

Completion of work filed APR 24 1981

Proof of beneficial use filed

Cultural map filed

Certificate No. Issued

Recorded Bk. Page

County Recorder

IN TESTIMONY WHEREOF, I, WILLIAM J. NEWMAN  
State Engineer of Nevada, have hereunto set my hand and the seal of  
my office, this 28th day of DECEMBER

A.D. 1979

William J. Newman  
State Engineer

Pat 51030 1.25  
218 (Rev.)  
Pat 51029 2.5  
Pat 51032 1.25  
TOTAL 5.0

## THERMAL POWER COMPANY

Proposed 8500-Foot Geothermal Exploratory Well: "Dixie Federal 66-21"  
Drilling and Completion Procedure  
(In Brief)

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1. Drill 17½" hole and open to 26" hole to 120'± with mud. Run 20" 94#, H-40 ST&C casing. Cement 0' to 120'.
2. Drill 17½" hole to 1300'± with mud. Run 13-3/8" K-55 buttress casing. Cement 0' to 1300', install casing head and blowout preventers.
3. Drill 12¼" hole 6300'± or to the top of the reservoir using water as the circulating medium. Test, and if necessary, cement lost circulation zones during drilling. Run 9-5/8" N-80 and K-55 from the 13-3/8" with a minimum lap of 200'. Cement 1100' to 6300' with admix cement.
4. Drill 8½" hole from 6300' to 8500'±, or until suitable production is encountered, with water. Test well through choke line.
5. If well has suitable production, run and cement 9-5/8" K-55 buttress casing from top of 9-5/8" liner to surface. Complete well with 13-3/8" x 9-5/8" expansion spool and master valve.
6. Lay down drill pipe, remove blowout preventers, and move off rotary rig.

